OAH Docket No. 3-2901-15763-2
EQB Docket No. 03-65-TR-GRE PMG

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE MINNESOTA ENVIRONMENTAL QUALITY BOARD

In the Matter of the Route Permit Application by Great River Energy and Wright-Hennepin Cooperative Electric Association for the Plymouth-Maple Grove High Voltage Transmission Line

REPORT AND RECOMMENDATION

This matter came on for public hearings before Administrative Law Judge Kathleen D. Sheehy on March 18, 2004, at 11 a.m. and 7:00 p.m. at the Plymouth Creek Center, 14800 34th Avenue North, Plymouth, Minnesota. The hearing continued until all interested persons had an opportunity to be heard.

Kevin Lennon, Supervisor of Transmission Substations for Great River Energy (GRE), 17845 East Highway 10, P.O. Box 800, Elk River, Minnesota 55330-0800, presented information on behalf of GRE and answered questions at the hearing.

Alan Mitchell, Manager of the Power Plant Siting Program for the Environmental Quality Board (EQB), and George Johnson, Project Manager, 658 Cedar Street, St. Paul, Minnesota 55155, presented the Board's position and answered questions at the hearing.

Approximately 25 members of the public attended the hearing. After the hearing, the record remained open for ten days to allow all interested persons to submit written comments. Members of the public submitted comments, and GRE and the EQB also filed written comments. The record closed on March 29, 2004.[1]

NOTICE

This project qualifies for alternative review under the Power Plant Siting Act, Minn. Stat. § 116.575. The EQB was not required to hold a contested case hearing on this project pursuant to chapter 14, and it did not do so. Under EQB rules, the EQB has the option to conduct a public hearing itself or to request that an Administrative Law Judge conduct the hearing and compile a record for the EQB to consider in making its

[1] Some comments were received after March 29, 2004. In general, these were copies of materials that had been e-mailed before the March 29 deadline or copies of materials that were presented at the public hearing. On April 1, 2004, GRE e-mailed a comment (Ex. 42) concerning the road construction schedule for Bass Lake Road, which the Administrative Law Judge has included in the record. The record reflects that commenters in general had difficulty in obtaining information about this road project prior to March 29, 2004.

final decision. The EQB also has the option to request that the Administrative Law Judge prepare a report and recommendation, which it did in this case. This report contains a summary of the evidence in the record and a recommendation based on that record. It is not a final decision. Pursuant to Minn. Stat. § 116C.575, subd. 7, the EQB will make the final determination of the matter within 60 days of the completion of the public hearing. Persons wishing to file comments concerning this report with the EQB should contact Alan Mitchell for information about the procedures to be followed. Further notice is hereby given that the EQB may, at its own discretion, accept or reject the Administrative Law Judge's recommendation.

STATEMENT OF ISSUE

Should the EQB issue a permit for the route proposed by GRE for the Plymouth-Maple Grove HVTL?

The Administrative Law Judge concludes that the EQB should issue the permit for the route proposed by GRE, with appropriate conditions.

Based upon all the proceedings herein, the Administrative Law Judge makes the following:

SUMMARY OF EVIDENCE

Procedural History

1. Great River Energy (GRE) is a Minnesota not-for-profit cooperative created when Cooperative Power and United Power Association formed a joint operating company to provide generation and transmission services to their 29 cooperative members. Wright-Hennepin Cooperative Electric Association is one of the 29 cooperative members.

2. GRE filed its application for a route permit for a high voltage transmission line (HVTL) with the Minnesota Environmental Quality Board on September 9, 2003. At the time, GRE's application for a Certificate of Need for the project was pending before the Minnesota Public Utilities commission.

3. By letter dated September 18, 2003, the chair of the EQB notified GRE that its application was accepted.[2]

4. There are multiple notice and publication requirements that must be met within 15 days of the filing of the application.[3] GRE attempted to publish notice of the filing of its application, a description of the proposed project, and directions for obtaining a copy of the application in the *Minneapolis StarTribune* within 15 days, but the publication was delayed until October 1, 2003 due to an error on the part of the

[2] Ex. 4.
[3] Minn. Stat. § 116C.575, subd. 4; § 116C.57, subd. 2b.

advertising staff at the paper.[4] The delay in publication was harmless and did not interfere with the public's right to be informed about the project.

5. GRE mailed the notice, within 15 days of the filing of the application, to regional development commissions, the county, municipalities, and townships in which the proposed route is located.[5]

6. GRE mailed the notice, within 15 days of the filing of the application, to each owner whose property is along the proposed route for the transmission line. The notice also advised property owners how to contact the EQB to get on its project contact list. [6]

7. GRE mailed the notice, within 15 days of the filing of the application, to those persons who had requested to be placed on a list maintained by the EQB for receiving notice of proposed HVTLs.[7]

8. The PUC granted the Certificate of Need for the project on October 9, 2003.[8]

9. On October 13, 2003, the EQB published in *The EQB Monitor* notice of acceptance of the project and of a public information meeting to be held at the Plymouth Library on October 28, 2003.[9] On October 14, 2003, the EQB mailed the notice to each person on the EQB's general notice list concerning proposed HVTLs, its local government list, and the GRE list of affected landowners.[10]

10. It appears that on October 17, 2003, the EQB published the notice of acceptance of the project and of the public information meeting in the *Minneapolis StarTribune*.[11]

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[4] Exs. 8-9.

[5] Exs. 5-7. The statutes at issue (Minn. Stat. § 116C.575, subd. 4, and Minn. Stat. § 116C.57, subd. 2b) require that a copy of the application be sent to these government entities by certified mail; the rule, however, requires only that mailed notice be sent. *See* Minn. R. 4400.1350, subp. 2. The Administrative Law Judge concludes that the use of mailed notice was harmless and did not interfere with the public's right to be informed about the project. The application was widely available. It was posted on the websites of GRE and the EQB and available in the Hennepin County libraries in Plymouth and Maple Grove.

[6] Exs. 5-7.

[7] *Id*.

[8] Ex. 24.

[9] Ex. 11.

[10] Ex. 13. The EQB was not required, under either Minn. R. 4400.1550, subp. 2, or Minn. R. 4400.2750, subp. 2, to mail the notice to the GRE list of affected landowners. The rules require only published notice in a newspaper of general circulation in the area and mailed notice to those persons whose names are on the EQB's general list or project contact list.

[11] Ex. 14 is a copy of the notice sent from the newspaper to the EQB on October 17, but it does not indicate when the notice was published. The exhibit list states that the notice was published on October 17, 2003.

11. The EQB held the public meetings at the Plymouth Library, 15700 36th Avenue North, Plymouth, Minnesota, on October 28, 2003. The hearings were held at 3:00 p.m. and 7:00 p.m. The meetings were well attended. At the public meeting the EQB received information from the public that was used to scope the environmental assessment.

12. On December 16, 2003, the chair of the EQB issued the scoping decision for the environmental assessment and determined therein that the environmental assessment should address four alternate routes proposed during the public meetings: (1) the Cedar Island Lake segment; (2) the Bass Lake Road and I 494 reconstruction segment; (3) the I 494 Xenium Lane Townhome segment (Rockford Estates); and (4) the I 494 segment crossing near the Target Store and Home Depot.[12]

13. On December 16, 2003, the EQB mailed copies of the scoping decision to each person on the EQB general notification list, local government list, and GRE landowner list.[13]

14. On February 24, 2004, the chair of the EQB requested that an Administrative Law Judge conduct the public hearings and prepare a report and recommendation on the route and any appropriate conditions that should be included in a Route Permit.[14]

15. The EQB's Environmental Assessment was completed on February 29, 2004.[15] The Environmental Assessment was posted on the EQB web page on by March 1, 2004. The EQB published a combined notice of the availability of the Environmental Assessment and notice of the public hearings in *The EQB Monitor* on March 1, 2004. The EQB mailed the same notice to persons on the EQB general notice and project contact lists on March 3, 2004.[16]

16. The EQB published notice of public hearings in the Maple Grove paper and the *Minneapolis StarTribune*.[17] The EQB also gave notice by certified mail to chief executives of the regional development commissions, counties, organized towns,

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[12] Ex. 15.
[13] Ex. 16.
[14] Ex. 17.
[15] Ex. 18.
[16] Ex. 20. The record does not indicate how or whether the EQB provided a copy of the Environmental Assessment to any public agency with authority to permit or approve the proposed project, as required by Minn. R. 4400.2750, subp. 6. The Minnesota Department of Natural Resources clearly reviewed the Environmental Assessment, however, and found that the proposed route complied with agency standards. *See* Ex. 41. The Minnesota Department of Transportation was on the list of persons receiving mailed notice. *See* Ex. 12. To satisfy this procedural requirement, the EQB should supplement the record to indicate how permitting authorities were provided with notice of and/or a copy of the Environmental Assessment.
[17] Exs. 22-23. The notice as published in the Maple Grove newspaper, Ex. 22, was not available at the time of the public hearing. On March 26, 2004, the EQB filed a comment letter, which stated that a copy of Ex. 22 was enclosed; the published notice was not, however, enclosed. The EQB should add Ex. 22 to the record if it is now available.

townships, and the incorporated municipalities in which the route is proposed.[18] The notice given was at least ten days but no more than 45 days before the commencement of the hearings.

17. Approximately 25 members of the public attended the public hearings in Plymouth. In general, the comments concerned route alternatives in three areas: Cedar Island Lake, Bass Lake Road, and the Target crossing/Rockford Estates Townhomes area.

18. At the hearing Exhibits 1 to 26 were received into the record. Comments received after the hearing are marked as Exhibits 27 to 42.

The Proposed HVTL Route

19. GRE proposes to build a single 115-kV transmission line between the Elm Creek Substation in Maple Grove and the Parkers Lake Substation in Plymouth, Minnesota. The planned line is 14 miles long. Two-thirds of the proposed route follows an existing 69-kV transmission line corridor and uses existing rights-of-way; the southern one-third of the proposed route follows a new corridor along Interstate Highway 494 and will require acquisition of new rights-of-way.[19] The proposed line will connect five other substations: the Hennepin, Arbor Lake, Cedar Island, Bass Lake, and Plymouth substations.

20. The proposed route is composed of the following route segments:

A. Construct approximately 2.25 miles of 115kV line to the existing Xcel Energy single circuit 115kV line running southeasterly from Xcel Energy's Elm Creek substation to its intersection with GRE's existing 69 kV line connecting the Arbor Lake and Hennepin substations. The existing Xcel Energy line would be rebuilt from the existing single circuit configuration to a double circuit configuration for this 2.25-mile distance.

B. Rebuild approximately 0.5 mile of 69 kV line to 115 kV from the termination of the 115 kV double circuit line described above to the Hennepin Substation. This 0.5 mile of 115 kV line would connect to the existing Xcel Energy 115 kV line, which runs southeasterly from Xcel Energy's Elm Creek Substation to the Osseo Substation.

C. Upgrade 69 kV line to 115 kV, or build new 115 kV line, for approximately 7.1 miles of existing 69 kV line between the termination of the double circuit 115 kV line described above and W-H's Arbor Lake, Cedar Island, Bass Lake, and Plymouth Substations.

[18] Ex. 21.
[19] *See* Figure 1-2 attached hereto.

D. Build approximately 4.25 miles of new 115 kV line from W-H's Plymouth Substation to Xcel Energy's Parkers Lake Substation.[20]

21. The new transmission line would require certain modifications to each of the existing substations, although no changes in the existing footprint of any substation will be required by the project. At Xcel Energy's Elm Creek Substation, modifications would be required to construct the additional 115 kV termination for the new GRE line. At Connexus Energy's Hennepin, Arbor Lake, Cedar Island, Bass Lake, and W-H's Plymouth Substations, the existing 69 kV distribution transformers would be replaced with 115 kV distribution transformers. At Xcel Energy's Parkers Lake Substation, modifications would be required to construct the additional termination for the new GRE line.[21]

22. Other modifications would be required, including de-energizing W-H's existing 69 kV line between the Bass Lake and Corcoran substations, GRE's existing 69 kV line between W-H's Plymouth Substation and Xcel Energy's Hollydale Substation, and GRE's existing 69 kV line between Connexus Energy's Hennepin Substation and GRE's Parkwood Substation.[22]

Design Structures

23. GRE's line design consists of three single conductor phase wires and one shield wire. The phase wires will be 795 MCM (795,000 circular mil) aluminum conductor steel supported (ACSS) with seven steel core strands and 26 outer aluminum strands. The industry code word for this conductor is "Drake." The conductor has an overall diameter of 1.108 inches and weights 1.094 pounds per lineal foot.[23]

24. GRE proposes to use single shaft wooden poles for most of the project. Along the existing right of way, the poles will be taller (about 80 to 95 ft) than those in place for the 69 kV line (about 60 to 75 ft), but the new poles will have a narrower profile.[24] In a few places where longer spans are required, such as over I494, galvanized steel single shaft poles will be used. GRE plans to use horizontal post insulators unless the design requires longer spans beyond the capability of the insulators. The longest spans will utilize a braced post design to accommodate the increased loadings. The distance between structures will be approximately 400 feet, but structure heights and spans will vary depending on topography and environmental constraints.[25]

25. GRE states that the HVTL will be constructed to comply with Rural Utilities Service (RUS) construction standards as well as the National Electric Safety Code

[20] Ex. 2 at 6.
[21] *Id*.
[22] *Id*.
[23] Ex. 18 at 13.
[24] Ex. 18 at 13, 27.
[25] *Id*.

(NESC). These standards include clearances to ground, clearance to crossing utilities, clearance to buildings, right-of-way widths, erecting power poles, and stringing of transmission line conductors.

Alternative Routes

26. The alternative routes are in segments C and D described above. These alternatives were proposed by residents based on their concerns about economic or financial impacts on property values, health concerns about exposure to electromagnetic fields (EMF), and aesthetic concerns about visual impact of structures and vegetation removal.

***Cedar Island Lake*.**

27. GRE's proposed route in this area runs along the right of way for the existing 69 kV line along 73rd Avenue North between the Cedar Island Substation on the east and I 494 on the west. Residents along 73rd Avenue North propose either burying the transmission line for this half-mile segment or rerouting the line in one of two ways: to the north along the back of Rosewood Lane and curving around 74th Avenue North to the Cedar Island Substation; or to the north along the back of Rosewood Lane, crossing the I 494/94 junction, then running north of I 94 for a short distance before crossing south of I 94 to connect to the Cedar Island Substation.[26]

***Bass Lake Road*.**

28. GRE's proposed route runs along the right of way for the existing 69 kV line between 73rd Avenue North, curving southeast along Sunnyslope Drive, and connecting to the Bass Lake Substation at approximately Bass Lake Road. From there, the GRE proposed route runs south along the existing right of way through the Fernbrook Lane neighborhood to the Plymouth substation. Residents in the areas of Sunnyslope Drive and Fernbrook/Empire Lane have proposed alternative route segments that would move the line out of their neighborhood entirely. When the proposed alternative segments are considered together, the residents advocate relocating the line so that it runs parallel to I 494, on either the east or west side, from the Plymouth Substation to 73rd Avenue North. The Bass Lake Substation would have to be connected to this route with a double-circuit line running along Bass Lake Road. [27]

***Target Crossing/ Rockford Estates*.**

29. The last alternative route is in the segment in which GRE has no existing right of way, between the Plymouth and Parkers Lake Substations. GRE's proposed route has the line running south along the west side of I 494, parallel to and west of the 345kV line operated by Xcel Energy. GRE's proposed route would cross to the east side of I 494 just north of Rockford Road, in the area of the Target and Home Depot

[26] Ex. 35.
[27] Exs. 27, 31, 33, 42.

stores. It would then run south, parallel to and along the east side of I 494 to the Parkers Lake Substation. Residents of town homes located near the Target store and on Zinnia Lane, just south of Rockford Road, object to the proximity of the transmission lines to their homes and to the need to remove trees and other vegetation that blocks their view of the freeway. They propose that the transmission line stay on the west side of I 494 past Rockford Road, crossing to the east side of I 494 at some point farther south (approximately 36th Avenue).[28]

Applicable Statutory and Rule Criteria

30. The EQB's route permit determination must be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure. The EQB is to be guided by the following responsibilities, procedures, and considerations:

(1) Evaluation of research and investigations relating to the effects on land, water and air resources of HVTLs and the effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;

(2) Environmental evaluation of routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;

(3) Evaluation of the effects of transmission technologies and systems related to power plants designed to minimize adverse environmental effects;

(4) Evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;

(5) Analysis of the direct and indirect economic impact of proposed routes including, but not limited to, productive agricultural land lost or impaired;

(6) Evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed route be accepted;

(7) Evaluation of alternatives to the applicant's proposed route;

(8) Evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;

[28] *See, e.g.*, Ex. 34; comments at public hearing.

(9) Evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(10) Evaluation of future needs for additional HVTLs in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

(11) Evaluation of irreversible and irretrievable commitments of resources should the proposed route be approved; and

(12) When appropriate, consideration of problems raised by other state and federal agencies and local entities.[29]

31. GRE's application and the EQB's Environmental Assessment contain adequate information to allow consideration of these factors.

32. The EQB is to assess the following specific considerations in determining whether to issue a route permit for an HVTL:

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

B. effects on public health and safety;

C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

D. effects on archeological and historic resources;

E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;

F. effects on rare and unique natural resources;

G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

H. use or paralleling of existing rights-of-way, survey lines,natural division lines, and agricultural field boundaries;

I. use of existing large electric power generating plant sites;

[29] Minn. Stat. § 116C.575, subd. 8; *id*. § 116C.57, subd. 4.

J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

K. electrical system reliability;

L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;

M. adverse human and natural environmental effects which cannot be avoided; and

N. irreversible and irretrievable commitments of resources.[30]

33. No route designation shall be issued in violation of the route selection standards and criteria established in Minn. Stat. § 116C.575, subd. 8, and in the rules adopted by the EQB.[31]

Assessment of Impacts

Impacts on Human Settlement Patterns.

34. The existing 69 kV transmission system serving the Plymouth-Maple Grove area was built in phases from 1954 to 1971. Since the transmission network was built, the population of the Plymouth and Maple Grove area has increased more than ten-fold, doubling in the last 20 years. These communities have essentially grown around the existing transmission network. The construction of a new transmission line will not lead to development that would not otherwise occur, nor will it interfere with future development. The location of the transmission line and new poles will be done in a manner such that no person will be displaced from a residence or business. The project will have no significant impact on human settlement patterns in Plymouth and Maple Grove.[32]

Noise.

35. The noise impacts are the same regardless of which route is selected. During construction, normal construction noise can be expected, but these operations will be short in duration and conducted during daylight hours to minimize the impact on residents.

36. During operation, audible noise due to point source corona is a function of conductor voltage gradient. Irregularities on the conductor surface from rain or droplets from heavy fog may create a crackling sound due to electricity ionizing moist air near

[30] Minn. R. 4400.3150.
[31] Minn. Stat. § 116C.575, subd. 9(b); *id*. § 116C.57, subd. 4.
[32] Ex. 18 at 28.

the wires. The noise produced by a 115 kV line operating normally should not exceed 12 dB(A) at the edge of the right of way during fair weather conditions; during heavy rain, the noise level may approach 18 dB(A) at the right-of-way edge. These noise levels are well below the maximum nighttime noise levels permitted by the Minnesota Pollution Control Agency (55 dB(A)).[33]

Visual Impacts and Aesthetics.

37. The new pole design will be taller but will have a narrower profile than the existing 69 kV poles. According to the Environmental Assessment, the poles will be less intrusive than the existing poles. In some instances, particularly in residential neighborhoods, the existing distribution line will be placed underground. For the new line segment the poles will be much less visually intrusive than the existing 345 kV towers almost universally visible along this stretch on the west side of I 494.

38. Residents along 73rd Avenue and north and south of Bass Lake Road object to the aesthetics of having taller poles in their neighborhoods. Residents of the Rockford Estates town homes object to the placement of new poles within sight of their back yards and to the removal of trees that stand between their homes and the highway. On the basis of these aesthetic objections, residents urge that the route be shifted to other streets within their neighborhoods or to more commercial areas where the visual impact of the poles would not be as great.

39. Because of the curve and the need to cross wide sections of interstate highway at least twice, use of the alternative route proposed in the Cedar Island Lake area would require the use of much taller steel structures spaced more closely together along the back of Rosewood Lane. In some cases these large structures would have to be less than 20 ft from homes located on this block.[34]

40. Use of the Bass Lake Road alternative would also require taller, bulkier steel structures along the winding length of Bass Lake Road and along Wedgwood Avenue.[35]

41. In the area of the Target Crossing/Rockford Estates, the alternative route would shift the line to the west side of I 494. In that area is a series of four large buildings located in close proximity to each other. Placement of the line in this location would require a span over the roofs of the buildings 1,700 feet in length. The length of this span would require huge structures, approximately 200 ft high (the 345 kV structures are typically 150 ft tall). If required to build on the west side of I 494 in this area, GRE would prefer, for safety reasons, to move the line farther west to the other side of these buildings, where smaller structures could be used on Fernbrook Lane. This shift would make the route longer, but it would impact approximately the same

[33] Ex. 18 at 33; Minn. R. 7030.0040.
[34] Lennon comments at public hearing.
[35] Ex. 42.

number of residences, depending on where the line would cross to the east of I 494. It would impact more businesses.[36]

Cultural Values and Recreation.

42. The Environmental Assessment identified no impacts to existing cultural or recreational resources. Just south of the Plymouth substation, the City of Plymouth has proposed to build a ball field complex. The City has requested that GRE design engineers work with city staff to locate the structures so that ball fields could be constructed without interference from the transmission line. GRE has agreed with this request.[37]

Public Services.

43. The proposed transmission line will not affect public services provided by the cities of Plymouth and Maple Grove (police and fire protection, waste collection, etc.). In addition, GRE states that the proposed transmission facilities will be designed to industry standards to avoid FM radio, television, and cell phone interference. In areas where the signals are weak, a transmission structure may cause interference. If the transmission line causes some localized effect outside the right of way that was not previously experienced, GRE will be responsible to correct it.[38]

Health and Safety.

44. Electric and magnetic fields (EMF) surround any electrical device, including a power line. Electric fields are produced by voltage, and these fields are easily shielded by objects such as trees and buildings. Magnetic fields are produced by current, and these fields pass through most materials. Both electric and magnetic fields weaken with increasing distance from the source.[39]

45. At present there is insufficient scientific evidence to establish a cause and effect relationship between EMF and any adverse health effects. The Minnesota Department of Health recommends avoiding exposures about which there are questions of safety or health, at least to the extent that an activity can be avoided easily or cheaply.[40] There are no state or federal health-based exposure standards.

46. In previous cases the EQB has imposed as a permit requirement a maximum electric field limit of 8 kV per meter at one meter above ground, to mitigate serious hazard from shocks when touching large objects parked under transmission lines with voltage of 500 kV or greater. GRE states that the proposed line will have a maximum magnitude of electric field density of approximately 1.1 kV per meter

[36] Ex. 37.
[37] Ex. 18 at 38.
[38] Ex. 18 at 38.
[39] EA at 20.
[40] EA at 21.

underneath the conductors one meter above ground level, which is well within the EQB limit.

47. The EQB has not imposed similar limits on exposure to magnetic fields. GRE estimates that in 2005 the line would have a peak value of 18.6 mG directly underneath the transmission line and a value of 10 mG at the edge of the right of way at maximum load conditions. GRE expects that as the load on the line increases, the power transfer between the Elm Creek and Parkers Lake substations will stop and the magnetic field strength on this facility will decrease over time. GRE estimates that after 2014 the proposed 115 kV line will have a lower magnetic field strength (12.1 mG directly underneath the line and approximately 6 mG at the edge of the right of way) than the existing 69 kV system.

48. Other states have set limits on magnetic field exposure of 150 mG (Florida) and 200 mG (New York) at the edge of the right of way.[41]

49. One resident who lives on 73rd Avenue North filed a comment urging the EQB to move the line off of his street because it might affect the proper functioning of his son's implanted cardioverter defibrillator (ICD). Some materials from the manufacturer (Medtronic) advise that persons with these devices should avoid exposure to power lines with voltage of more than 100,000 volts.[42] The voltage on this line will be 115 kV. GRE contends that implantable medical devices such as pacemakers are designed to tolerate EMF exposure at levels far higher than those expected directly under this line. For example, it contends that a different manufacturer (Guidant) recommends not exceeding a magnetic field strength of 10,000 mG or an electrical field strength of 6 kV/meter.[43] As noted above, the highest magnetic field strength from this line is expected to be 18 mG, and the highest electric field strength is expected to be 1.1 kV/meter.

50. It is not possible for the Administrative Law Judge to resolve this factual issue on the record produced in an alternative review proceeding. If it were true, however, that 115 kV lines might affect the functioning of such devices, rerouting the line would not be a solution; rerouting would simply shift the danger to another area. Furthermore, there is insufficient evidence in the record to conclude, as some residents urge, that undergrounding the transmission line on 73rd Avenue North would reduce EMF exposure to safe levels for persons using these devices.

51. Moreover, Xcel Energy's 345 kV line runs through this highly populated area; people walk and drive under and around the lines every day. Many buildings have been erected close to or directly underneath these lines in Xcel Energy's right of way, yet there is no evidence that even these larger voltage lines have posed any health or safety risks to residents who use implantable medical devices. The predicted exposures of the 115 kV GRE line are certainly well below limits set by other states and by the manufacturer cited by GRE. The EQB should take whatever additional steps it

[41] Ex. 18 at 69.
[42] Ex. 35, App. C; Ex. 39.
[43] Ex. 37.

deems necessary to resolve this issue to its own satisfaction and determine whether other mitigative measures should be required of GRE (such as raising the height of wires and conductors, etc) in areas where the lines are particularly close to residences.

Impacts on Land-Based Economies, Including Agriculture.

52. The Environmental Assessment identified 1.6 acres of prime farmland in the right-of-way between the Plymouth and Bass Lake Substations. The remainder of the proposed route consists of urban or built-up land. The National Resource Conservation Service (NRCS) has indicated that the transmission line will not affect prime farmland in the area of the project.[44] The Environmental Assessment identifies no impacts on forestry, mining, or tourism.

Impacts on Local Archeological and Historic Resources.

53. There are no properties listed on or eligible for the National or State Registers of Historic Places, and no known or suspected archaeological properties in the area that will be affected by this project.[45]

Impacts on the Natural Environment.

54. This project is located in a heavily developed, highly urbanized portion of the western Twin Cities. There are limited areas that could be described any longer as unique natural resources. Almost all waters, wetlands, forests, agricultural land, and other natural areas are isolated patches in the urban matrix. These areas are already protected through designations as parks, wetlands, and waters of the state. Wildlife habitat is limited to wetlands and park property.

55. Potential impacts to wetland and water resources will be minimal and limited to ground disturbances associated with placement of the transmission structures, regardless of the route selected. Construction in these areas will take place in winter to minimize impacts to the natural environments.[46]

56. There are no wetland areas within the right-of-way of the proposed route or the alternative route in the Cedar Island Lake area.

57. GRE's proposed route along the existing transmission line between the Bass Lake and Plymouth substations would impact seven wetland areas. Use of the alternative route along Bass Lake Road and I 494 would impact two or three wetland areas instead of the seven that are currently impacted.

[44] Ex. 18 at 37.
[45] Ex. 18 at 29.
[46] Ex. 18 at 31.

58. The new portion of the proposed route, between the Plymouth and Parkers Lake Substations, would impact ten wetland areas. Use of the alternative route in the area of Rockford Estates would decrease the impact by one.[47]

Effects on Rare and Unique Natural Resources.

59. There is one feature in the area that is listed as a remnant natural community on the Minnesota County Biological Survey—a maple-basswood forest located south of Schmidt Lake Road in the Plymouth to Parkers Lake segment of the proposed route. This is designated as a future park area in the City of Plymouth comprehensive plan. City staff have requested that the line be engineered with extra spans or taller structures to minimize the number of trees that would have to be cleared. GRE has agreed to clear as few trees as possible and will stake the proposed route in the fall when the leaves are off, so City staff can walk the woodland area and assess the potential impacts. The City of Plymouth has an existing tree preservation policy, and if GRE surpasses the threshold, restitution would be required.[48]

60. There are no threatened or endangered species or state-listed species identified by the Department of Natural Resources (DNR) along the proposed route. The US Fish and Wildlife Service reviewed the proposed route and concluded the project would not affect any federally listed or proposed threatened or endangered species. It is not likely that any migratory threatened or endangered species will intrude into what is a highly developed urbanized environment.[49]

61. The Environmental Assessment identified no critical habitats that would be disrupted by the project.

Application of Design Options to Maximize Energy Efficiencies, Mitigate Adverse Environmental Effects, and Accommodate Expansion of Transmission Capacity.

62. GRE has no plans to expand the proposed 115 kV transmission line through 2026, and it states that it is not aware of any other utility plans to expand the 115 kV line. The design plans are based on the current project and do not include any future expansion of the HVTL.[50]

63. GRE states that it will work with affected landowners to use a design that mitigates the impact on the affected landowners and the right of way. Specifically, GRE has committed to the following to mitigate visual and aesthetic impacts:

- Bury distribution line where possible in residential neighborhoods.
- Place structures as far as possible from homes.

[47] Ex. 18 at 31.
[48] Ex. 18 at 30.
[49] Ex. 18 at 30.
[50] GRE App. At 66.

- Minimize the appearance of the lines in the area of Rockford Estates by hanging the wires over the Mn/DOT right of way.
- Re-landscape the berm in the area of Rockford Estates, including installation of a wood fence, plant material consistent with maintenance of the transmission line, and a new sprinkler system.
- Take measures to minimize erosion by planting or seeding areas where structures are installed.
- Negotiate special tree-trimming agreements with individual landowners to minimize excessive tree removal.

***Use or Paralleling of Existing Rights of Way*.**

64. The proposed route uses the existing 115 kV route and right of way from Elm Creek to GRE's existing facilities at CR 81 and Zachary Lane; it uses the existing 69 kV route from there to the Plymouth Substation. GRE states that it has a 70-ft easement on its existing route that should be adequate for most areas.[51] From the Plymouth Substation to the 494 crossing, it uses an existing Xcel Energy route and right of way. From the 494 crossing south, the proposed route parallels the I 494 right of way corridor on the east side. GRE maintains that it is not possible to use the Xcel Energy route and right of way on the west side of 494 for this final stretch because Xcel Energy has allowed encroachments (buildings) into the right of way that would not permit the safe and economical installation of the 115 kV HVTL within that easement.

65. The Cedar Island alternative route would not use existing rights of way and would affect landowners north and south of I 94 who are not already impacted by transmission lines.[52] The alternative of undergrounding for approximately ½ mile along 73rd Avenue North would use GRE's existing rights of way.

66. The Bass Lake Road alternative route would not use existing rights of way and would affect many landowners who are not already impacted by transmission lines.[53] The alternative would run parallel to but not entirely within the Xcel Energy right of way for the 345 kV line on the west side of 494; it would run parallel to the 494 corridor on the east side.

67. Some residents dispute GRE's assertions that the 115 kV line would have to be placed at least 80 to 100 ft away from the center line of the 345 kV line to comply with NESC vertical and horizontal clearance requirements.[54] No one contends, however, that the 115 kV line could be built on or under the 345 kV line, and there is no evidence that the 115 kV line could be built closer to the 345 kV line in a manner that would avoid impacting many new landowners between the Plymouth Substation and 73rd Avenue North.

[51] Ex. 2 at 53.
[52] Ex. 40D.
[53] Ex. 37, 40D.
[54] Ex. 38.

Electrical System Reliability.

68. The transmission line is needed to provide better electric service to the residents of Plymouth and Maple Grove. Most of the existing transmission system in this area was built before 1970 and is no longer adequate to support the electric load. The infrastructure proposed in this project is intended to enable GRE to provide more reliable energy service and to allow for projected regional growth for the next 20 years.

Costs of Constructing, Operating, and Maintaining the Facility that are Dependent on Design and Route.

69. The cost of constructing, operating, and maintaining the facility along the proposed route is likely to be lower than along alternative routes.[55] The proposed route relies on existing rights of way to the extent technically and economically feasible, which reduces the cost of acquiring easements and right of way preparation. GRE estimates that costs of construction on the proposed route are $11,364,000. It estimates that annual operation and maintenance costs will be approximately $1,000 per mile of line.

70. GRE has provided some information concerning the costs associated with the alternative routes. GRE contends that the first alternative in this area, running the line around the back of Rosewood Lane and along 74th Avenue North, is not buildable because there is inadequate room behind the town homes on 74th Avenue North. It estimates that the other route alternatives, running either above ground across the highway and back, or underground for 1/2 mile along 73rd Avenue North, would cost an additional $1.15 million to $1.25 million vs. $100,000 to use the existing right of way for above-ground lines. GRE also maintains that undergrounding the HVTL for this 1/2 mile would produce energy losses of more than 5 MW. Residents in the area dispute this figure. They maintain, based on information obtained from Underground Systems, Inc., that undergrounding may minimize energy losses and that the additional cost of installation might be recovered over time through fewer energy losses and decreased maintenance costs.[56]

71. Again, there is no way to resolve this type of factual issue on the record produced in an alternative review proceeding. Even if the information provided by the residents as to energy losses is accurate, however, the initial installation cost is a large additional expense for ½ mile of power line.

72. GRE estimates that one portion of the Bass Lake Road alternative would add $187,500 to the project; however, it is not clear what this figure represents. GRE has stated that many additional steel structures at a cost of $200,000 each would be required, along with acquisition of additional rights of way, which could quickly add "millions" to the cost of the project.[57] There is no accurate estimate in the record of

[55] Ex. 18 at 40.
[56] Ex. 35, App. F.
[57] Ex. 37.

what this alternative route would cost, but it appears to be substantially higher than $187,500.

73. GRE estimates that the additional cost of the Target Crossing/Rockford Estates alternative is between $500,000 and approximately $1 million, depending upon how far west of the existing 345 kV line the new line were to be located.[58] It is not clear whether it is either technologically feasible or safe to erect a span of 1,700 feet to run over the top of the large buildings immediately to the west of the 345 kV line.

Adverse Human and Natural Environmental Effects that Can Not Be Avoided.

74. The only identified environmental effects that cannot be avoided are primarily short-term during the construction of the line. GRE has committed to maintaining native vegetation within the proposed route that is compatible with the operation and maintenance of the transmission line. It has agreed to plant or seed in areas that are devoid of native species or use other methods to minimize erosion.

Irreversible and Irretrievable Commitments of Resources.

75. The proposed route does not require any irreversible or irretrievable commitment of resources.

Excluded Sites that Must Be Avoided Under Minn. R. 4400.3310.

76. Neither the proposed route nor any alternate route would involve any of the exclusions under this rule.

RECOMMENDATION

Based upon the evidence contained in the record, the Administrative Law Judge respectfully recommends that the EQB issue the route permit for the route proposed by GRE, with appropriate conditions including those identified above. GRE should be required to stay within the existing right of way for portions of the transmission line that are a rebuild or upgrade of the 69 kV line; and in the areas where new rights of way will be required, GRE should be required to stay within 40 feet either side of the center line.

Dated: May 6, 2004

__/s/ Kathleen D. Sheehy_____
KATHLEEN D. SHEEHY
Administrative Law Judge

[58] Lennon comments at public hearing.

MEMORANDUM

I. Notice.

A group of residents in the Sunnyslope neighborhood contend that they received inadequate notice of the public hearings on March 18, 2004.[59] The EQB provided the public notice that was legally required: it published the notice in local newspapers, and it mailed the notice to those on its contact lists. Earlier in this process, it appears that the EQB provided more notice than it was required to provide, by mailing notices of the public meetings in October 2003 to all persons on the GRE list of landowners. While it might be better to be consistent, the Administrative Law Judge cannot conclude that "over-noticing" in the past made the more recent notices legally insufficient. The EQB did what it was required to do and cannot be faulted because these residents did not request that their names be added to the EQB's project contact list.

II. Preference for Use of the Existing Route.

The Minnesota Supreme Court has held that, in order to make the route selection process comport with Minnesota's commitment to the principle of nonproliferation of power lines, the EQB must, as a matter of law, choose a pre-existing route unless there are extremely strong reasons not to do so.[60] The court reasoned that the use of a pre-existing route minimizes the impact of the new intrusion "by limiting its effects to those who are already accustomed to living with an existing route." This policy is rooted not in the desire to make it "easy" for power companies to make routing decisions, but in the legislative preference to protect the environment from further impairment and encroachment when choosing between alterative sites.[61]

The residents proposing alternative routes along the Cedar Island Lake area and the Bass Lake Road area contend that routing the 115 kV line in the same general area as Xcel Energy's 345 kV line would be consistent with the principle of nonproliferation. The principle of nonproliferation has to do with containing the impact of power lines on landowners, particularly landowners who built their homes after an existing power line was constructed.[62] The record is clear that the alternative routes would impact many new landowners, and these alternative routes are therefore inconsistent with the principle of nonproliferation. The alternative routes would simply shift the burdens of living with the power line from one set of landowners to another, and they are also clearly more costly.

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[59] Exs. 27, 31.

[60] *People for Environmental Enlightenment and Responsibility (PEER), Inc. v. Minnesota Environmental Quality Council*, 266 N.W.2d 858, 873 (Minn. 1978).

[61] *Id.*, 266 N.W.2d at 868.

[62] *See id.*, 266 N.W.2d at 864 ("Many houses in the vicinity of [the existing power line corridor] were built there after the powerline now in place was constructed which suggests that its presence was not unacceptably offensive to the residents. Therefore, were the case to be decided on the present record, the [EQB] would be required, as a matter of law, to select [the existing power line corridor]."

III. Use of New Rights of Way.

GRE has no existing route between the Plymouth and Parkers Lake Substations. It proposes using part of Xcel Energy's right of way until technical and safety considerations resulting from encroachments into the right of way require a shift to the west side of I 494. GRE's proposed route would impact about the same number of residences but fewer businesses than the alternative. Finally, three outside engineering firms studied many route alternatives for this segment of the line, and all recommended use of the proposed route.[63] GRE has demonstrated that it would be technologically difficult to accomplish the alternative route and that the visual impacts and costs of the alternative route would be much greater.

Residents also expressed concerns that they were not able to participate more actively in the preparation of the Environmental Assessment. The record reflects, however, that their concerns were taken seriously, that the alternative routes were fully considered in the process, and that these routes were rejected for sound reasons.

K.D.S.

[63] Ex. 37.

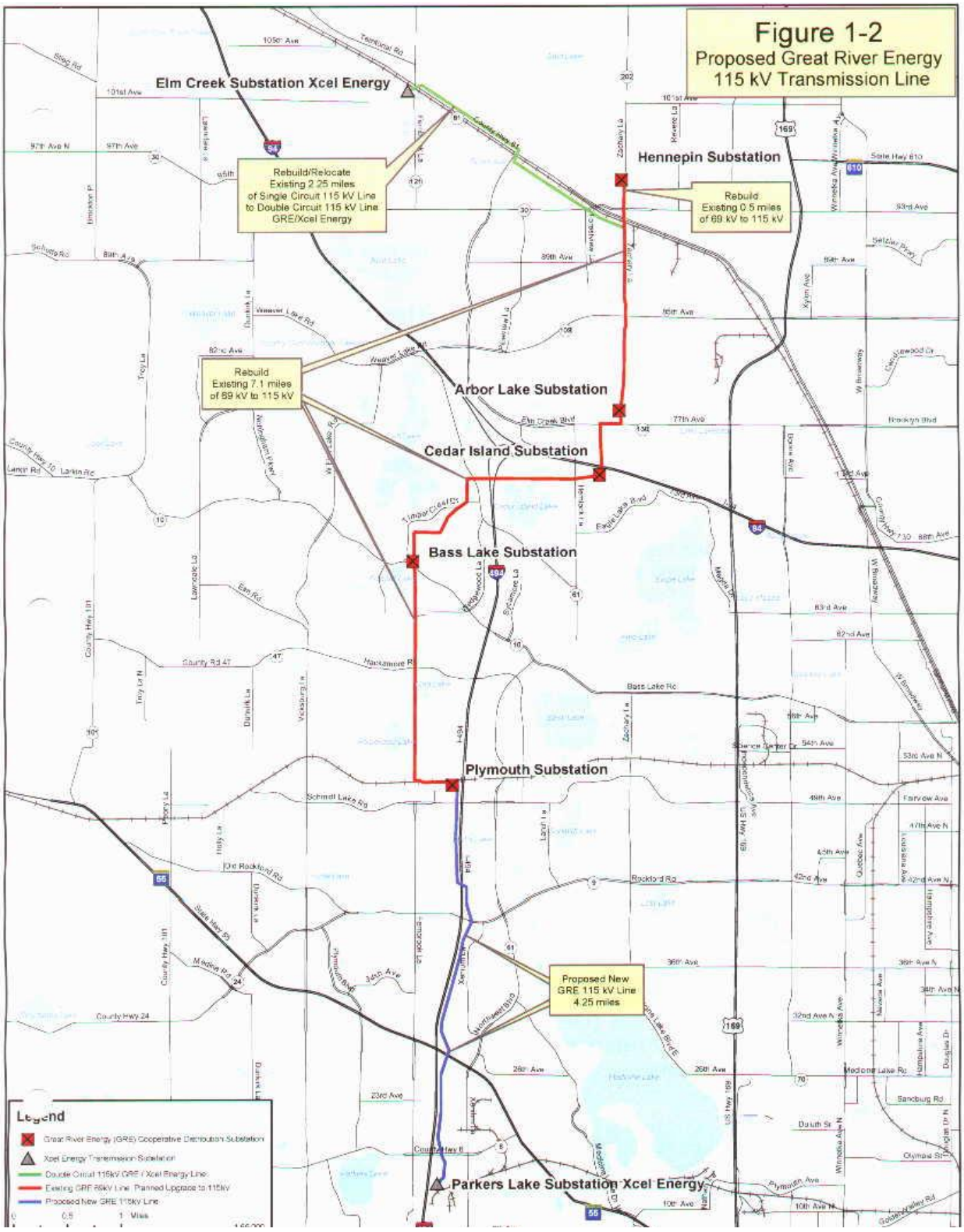
Figure 1-2
Proposed Great River Energy
115 kV Transmission Line
Elm Creek Substation Xcel Energy
Rebuild/Relocate
Existing 2.25 miles
of Single Circuit 115 kV Line
to Double Circuit 115 kV Line
GRE/Xcel Energy
Hennepin Substation
Rebuild
Existing 0.5 miles
of 69 kV to 115 kV
Rebuild
Existing 7.1 miles
of 69 kV to 115 kV
Arbor Lake Substation
Cedar Island Substation
Bass Lake Substation
Plymouth Substation
Proposed New
GRE 115 kV Line
4.25 miles
Parkers Lake Substation Xcel Energy
Legend
Great River Energy (GRE) Cooperative Distribution Substation
Xcel Energy Transmission Substation
Double Circuit 115kV GRE / Xcel Energy Line
Existing GRE 69kV Line Planned Upgrade to 115kV
Proposed New GRE 115kV Line
0 0.5 1 Miles